

SOIL CLASSIFICATION CHART

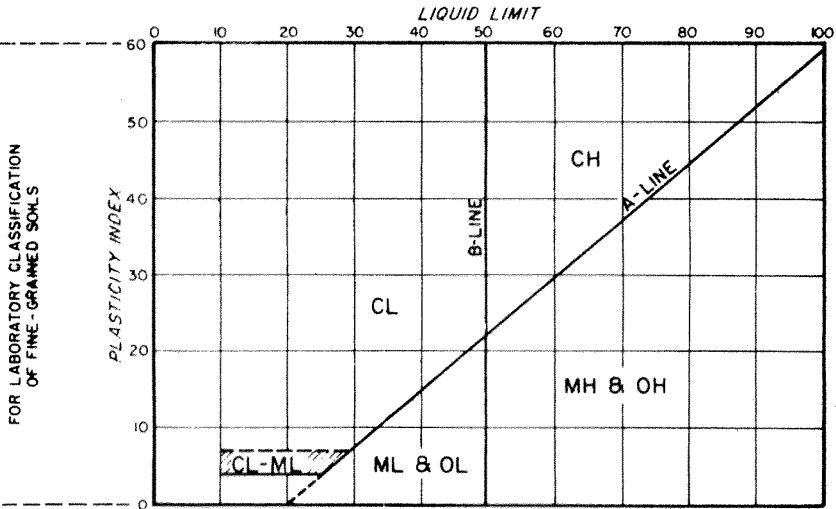
MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS	
COARSE GRAINED SOILS MORE THAN 50 % OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50 % OF COARSE FRACTION <u>RETAINED</u> ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION <u>PASSING</u> NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES	
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES	
FINE GRAINED SOILS MORE THAN 50 % OF MATERIAL IS <u>SMALLER</u> THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT <u>LESS</u> THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
	SILTS AND CLAYS LIQUID LIMIT <u>GREATER</u> THAN 50			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
		HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

GRADATION CHART

MATERIAL SIZE	PARTICLE SIZE			
	LOWER LIMIT		UPPER LIMIT	
	MILLIMETERS	SIEVE SIZE*	MILLIMETERS	SIEVE SIZE*
SAND				
	FINE	.075	#200*	0.425
	MEDIUM	0.425	#40*	0.850
GRAVEL	COARSE	0.850	#20*	4.75
		4.75	#10*	7.5
COBBLES		7.5	3"	76.2
BOULDERS		76.2	12"	304.8

* U.S. STANDARD * CLEAR SQUARE OPENINGS

PLASTICITY CHART



NOTES:

- DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE CLASSIFICATIONS.
- WHEN SHOWN ON THE BORING LOGS, THE FOLLOWING TERMS ARE USED TO DESCRIBE THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE COMPACTNESS OF COHESIONLESS SOILS.

COHESIVE SOILS		COHESIONLESS SOILS	
	(APPROXIMATE SHEARING STRENGTH IN KSF)		
VERY SOFT	LESS THAN .25	VERY LOOSE	THESE ARE USUALLY BASED ON AN EXAMINATION OF SOIL SAMPLES, PENETRATION RESISTANCE, AND SOIL DENSITY DATA.
SOFT	0.25 TO 0.5	LOOSE	
MEDIUM STIFF	0.5 TO 1.0	MEDIUM DENSE	
STIFF	1.0 TO 2.0	DENSE	
VERY STIFF	2.0 TO 4.0	VERY DENSE	
HARD	GREATER THAN 4.0		

SAMPLES

- INDICATES UNDISTURBED SAMPLE
- INDICATES DISTURBED SAMPLE
- INDICATES SAMPLING ATTEMPT WITH NO RECOVERY
- INDICATES LENGTH OF CORING RUN

NOTE: DEFINITIONS OF ANY ADDITIONAL DATA REGARDING SAMPLES ARE ENTERED ON THE FIRST LOG ON WHICH THE DATA APPEAR.

UNIFIED SOIL CLASSIFICATION SYSTEM

BRAIDWOOD STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.5-27

UNIFIED SOIL CLASSIFICATION SYSTEM

GENERAL NOTES FOR LOG OF BORINGS

KEY TO TEST DATA:

SHEAR STRENGTH DEFINED AS ONE-HALF THE PEAK AXIAL COMPRESSIVE STRESS IN PSF DETERMINED BY UNCONFINED COMPRESSION TESTS AND UNCONSOLIDATED-UNDRAINED TRIAXIAL TESTS.

90% PERCENT RECOVERED INDICATES TOTAL AMOUNT OF CORE RECOVERED FOR EACH RUN, EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF THE CORE RUN.

RQD ROCK QUALITY DESIGNATION

A MODIFIED CORE RECOVERY PERCENTAGE IN WHICH ALL THE PIECES OF SOUND CORE 4 INCHES OR LONGER ARE COUNTED AS RECOVERY. THE MODIFIED SUM OF CORE RECOVERED IS THE EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF THE CORE RUN.

WATER LOSS (LUGEONS) TERMINOLOGY:

LESS THAN .9 LUGEONS



.9 TO 3 LUGEONS



3 TO 6 LUGEONS



6 TO 10 LUGEONS



10 TO 25 LUGEONS



GREATER THAN 25 LUGEONS



SYMBOLS FOR OTHER TESTS:

TX/DY DYNAMIC TRIAXIAL COMPRESSION TEST

RES RESONANT COLUMN TEST

DS DIRECT SHEAR TEST

C CONSOLIDATION TEST

SA SIEVE ANALYSIS

UC/R UNCONFINED COMPRESSION TEST ON ROCK

KEY TO SAMPLES:

INDICATES THE NUMBER OF BLOWS REQUIRED TO DRIVE A STANDARD PENETRATION TEST SAMPLER.

13 ■ INDICATES DEPTH OF STANDARD PENETRATION TEST (2" O.D. SPLIT SPOON SAMPLER)

INDICATES THE NUMBER OF BLOWS REQUIRED TO DRIVE A DAMES & MOORE TYPE U SAMPLER.

13 ■ INDICATES DEPTH OF SAMPLE OBTAINED WITH DAMES & MOORE TYPE U SAMPLER (3.25" O.D. 2.42" I.D. SPLIT SPOON SAMPLER)

P INDICATES SAMPLER PUSHED TO OBTAIN SAMPLE

□ INDICATES DEPTH OF SAMPLING ATTEMPT WITH NO RECOVERY

■ INDICATES DISTURBED SAMPLE

NOTES:

ELEVATIONS REFER TO U.S.G.S. DATUM (MEAN SEA LEVEL)

THE PARKLAND SAND IS NOT DIFFERENTIATED FROM THE EQUALITY FORMATION IN THE BORING LOGS.

5% VUGS INDICATES THE ESTIMATED RATIO OF VUGGED CORE SURFACE AREA TO TOTAL CORE SURFACE AREA. BOTH OPEN AND FILLED VUGS ARE INCLUDED IN THE VUGGED CATEGORY.

BEDDING TERMINOLOGY:

THINLY LAMINATED	- LESS THAN 1/4 INCH
LAMINATED	- 1/4 TO 2 INCHES
THIN BEDDED	- 2 TO 6 INCHES
MEDIUM BEDDED	- 6 TO 12 INCHES
MASSIVE BEDDED	- GREATER THAN 12 INCHES

THE DISCUSSION IN THE TEXT IS NECESSARY FOR PROPER UNDERSTANDING OF THE NATURE OF THE SUBSURFACE MATERIALS.

BRAIDWOOD STATION UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.5-28

GENERAL NOTES FOR LOG OF BORINGS